



## GS recipe library

### Application

In general, table margarine is used as a spread on bread. However, table margarine can be used for other domestic purposes such as baking and frying applications.



### Characteristics

Homogenous and spreadable at refrigerator temperature, pleasant flavor and mouth-feel, quick melt-down in the mouth are typical characteristics.

When using a fat blend with a relatively low melting point the above mentioned quick melt-down sensation in the mouth is achieved. Skim-milk powder usually contributes with an improved flavour release.

*Trans* fatty acid free products should have similar properties as products containing *trans* fatty acid. However, the partially hydrogenated oils contribute with plasticity to the product. The partly hydrogenated vegetable oils normally used in a traditional margarine are replaced with an interesterified hardstock. Palm oil has been added to achieve a SFC profile similar to conventional table margarine. Coconut oil is used in order to secure the quick melt-down sensation in the mouth.

### Processing

- The ingredients for the aqueous phase are mixed.
- The ingredients for the fat phase is melted under agitation, typically the highest melting fats are added first and liquid oil last. The fat phase is then tempered to approximately 5-8°C higher than the melting point of the fat phase.
- Emulsifiers, which are mixed into liquid oil in the proportion 1:5, are heated and melted at a temperature approx. 5-8°C higher than the melting point of the emulsifiers, and added to the fat phase.
- Flavour and colours are added according to solubility.
- The aqueous phase is added under agitation to the fat phase.
- The complete emulsion is pasteurised which typically involve heating to 75-80°C for 15-20 sec and cooling to 45-50°C or 5-8°C higher than the melting point of the fat phase.
- The emulsion is crystallised according to the flow diagram below.
- Table margarine is stored at refrigerator temperature.

### Recipe

#### Fat phase in %

Intesterified fat blend MP 40/42°C	10.0
Palm oil	30.0
Coconut oil	8.0
Liquid oil	31.4
Emulsifier (mono-and diglycerides)	0.4
Lecithin	0.2

#### Aqueous phase in %

Water	17.9
Salt	1.0
Skim milk powder	1.0
K-sorbate	0.1

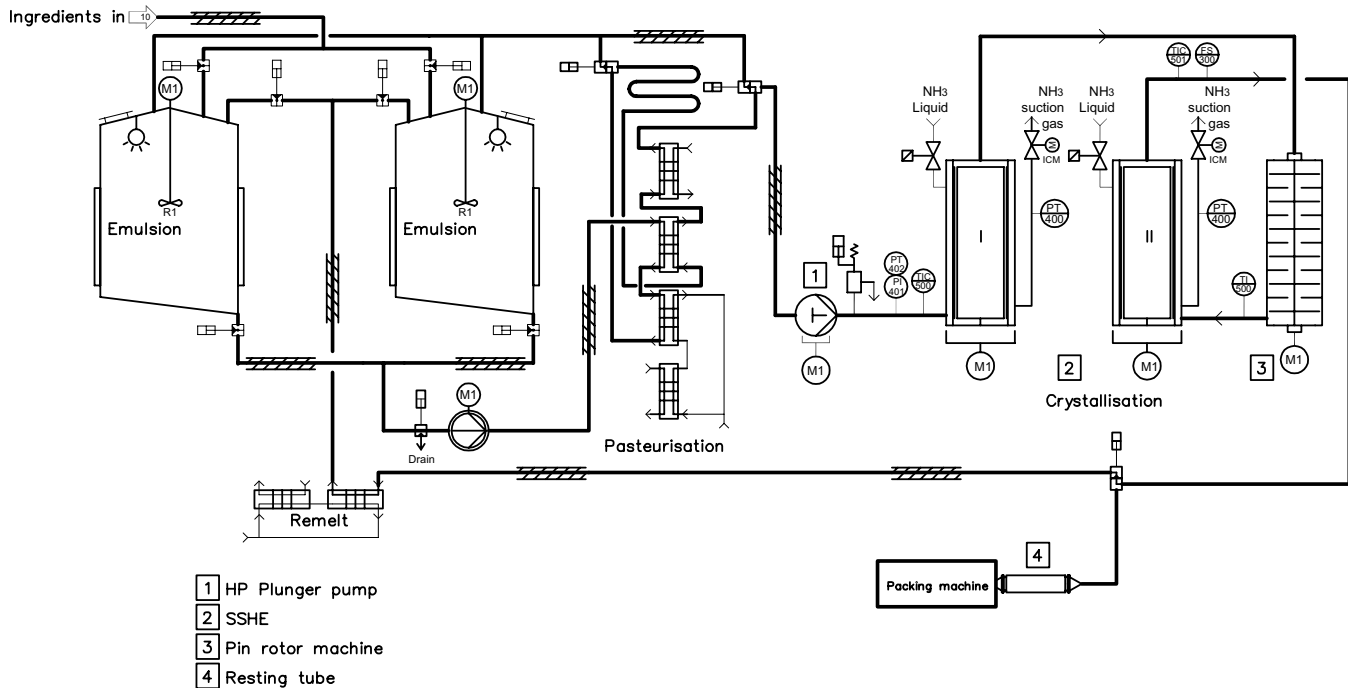
Normally colour and flavour is added to the fat phase. pH is recommended to be adjusted by means of citric acid to 4-5.

#### Solid fat content in %

10°C	26.0
20°C	13.0
30°C	3.0
40°C	0.0

#### Melting point

Approximately	28-30°C
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## Typical quality deficiencies

We recommend the following changes in processing if the below mentioned quality deficiencies during or after processing occur:

### Too hard at the wrapping machine

- Cool more intensively in the first cooling section and/or less intensively in the last cooling section of the SSHE
- Increase the rotation speed in the pin rotor machine
- Ensure proper water circulation in the jacket of the pin rotor machine

### Brittle

- As described above
- Increase the total volume of kneading units, i.e. pin rotor machine

### Grainy (small rice-like grains)

- Increase the remelt temperature of the return product
- Ensure proper pasteurisation profile
- Cool less intensively in the first cooling section of the SSHE

### Lumpy (lumps of different sizes)

- Increase the rotation speed in the pin rotor machine
- Ensure proper crystallisation in the first cooling section of the SSHE
- Ensure proper water circulation in the jacket of the pin rotor machine

### Greasy or too soft at filling or wrapping machine

- Decrease the rotation speed in the pin rotor machine and/or decrease the residence time in the kneading unit(s).
- Cool less intensively in the first cooling section of the SSHE and/or more intensively in the second cooling section of the SSHE

### Oily appearance or too shiny surface

- Decrease the rotation speed in the pin rotor machine and/or decrease the residence time in the kneading unit(s).